CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Interim Director

Mayor Timothy M. Keller

August 16, 2019

Ron Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Place, NE
Albuquerque, NM 87109

RE: **Jiffy Lube Expansion**
8305-8313 Menaul NE
Grading Plan Stamp Date: 7/23/19
Drainage Report Stamp Date: 7/23/19
Hydrology File: H15D068

Dear Mr. Bohannan,

Based on the submittal received on 7/24/19, this project cannot be approved for Plat or Site Plan until the following are corrected:

Prior to Plat, Site Plan for Building Permit & Building Permit:

1. Remove the SO-19 notes and language and replace with “to be built by Work Order” or similar.
2. List the sidewalk culverts on the infrastructure list; correct the InvertIn elevations too.
3. On the Plat, provide a drainage easement over the ponds and annotate using the Plat Drainage Easement Note. This note replaces the need for a separate drainage covenant (alternatively, you could do a drainage covenant, recorded prior to C.O).
4. SWQP 3 crosses lot lines. Either locate it on just one property, or two easements (or covenants) will be required, signed by each underlying property owner.
5. For automotive repair centers, demonstrate *control of oil from vehicle parking areas* per DPM Chapter 22.9.E, Table 1.
6. Identify the limits of repaving and new building. Stormwater quality requirements only need to be met for these areas. If unable to capture in the area of redevelopment, you can capture from elsewhere on your property to offset the bypass volume.
7. Please provide the SWQV calculations for each basin draining to each pond. The stormwater quality ponds need to be sized for the areas draining to them. As currently presented, payment in lieu of some management onsite will be required.

PO Box 1293

Albuquerque

NM 87103

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8. Around the driveways on Menaul and Wisconsin, how will flows be diverted into the ponds instead of simply flowing out the driveway?

9. Show all proposed walls and label clearly in plain view; add top wall/bottom of wall spot elevations. Provide sections through all external boundary walls showing proposed retaining walls, garden walls, property/ROW lines, existing and proposed grades. In accordance with DPM Ch.22, section 5 part B, grading and wall construction near the property line may not endanger adjacent property or constrain its use.

Prior to Certificate of Occupancy (For Information):

10. Engineer's Certification, per the DPM Chapter 22.7: *Engineer's Certification Checklist For Non-Subdivision* is required.

11. City acceptance and close-out of the public Work Order will be required, unless a financial guarantee has been posted.

12. The Plat (w/ drainage easements) will need to be recorded.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

PO Box 1293

Albuquerque

NM 87103

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City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: Jiffy Lube - 8305-8313 Menaul Blvd. Building Permit #: _____ Hydrology File #: _____

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: _____

City Address: 8305-8313 Menaul Blvd. NE Albuquerque NM 87110

Applicant: Tierra West, LLC Contact: Richard Stevenson

Address: 5571 Midway Park Place NE Albuquerque NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rstevenson@tierrawestllc.com

Other Contact: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE _____ DRB SITE X ADMIN SITE

IS THIS A RESUBMITTAL? _____ Yes X No

DEPARTMENT _____ TRANSPORTATION X HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
X GRADING PLAN
X DRAINAGE REPORT
____ DRAINAGE MASTER PLAN
____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
____ ELEVATION CERTIFICATE
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ STREET LIGHT LAYOUT
____ OTHER (SPECIFY) _____
____ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

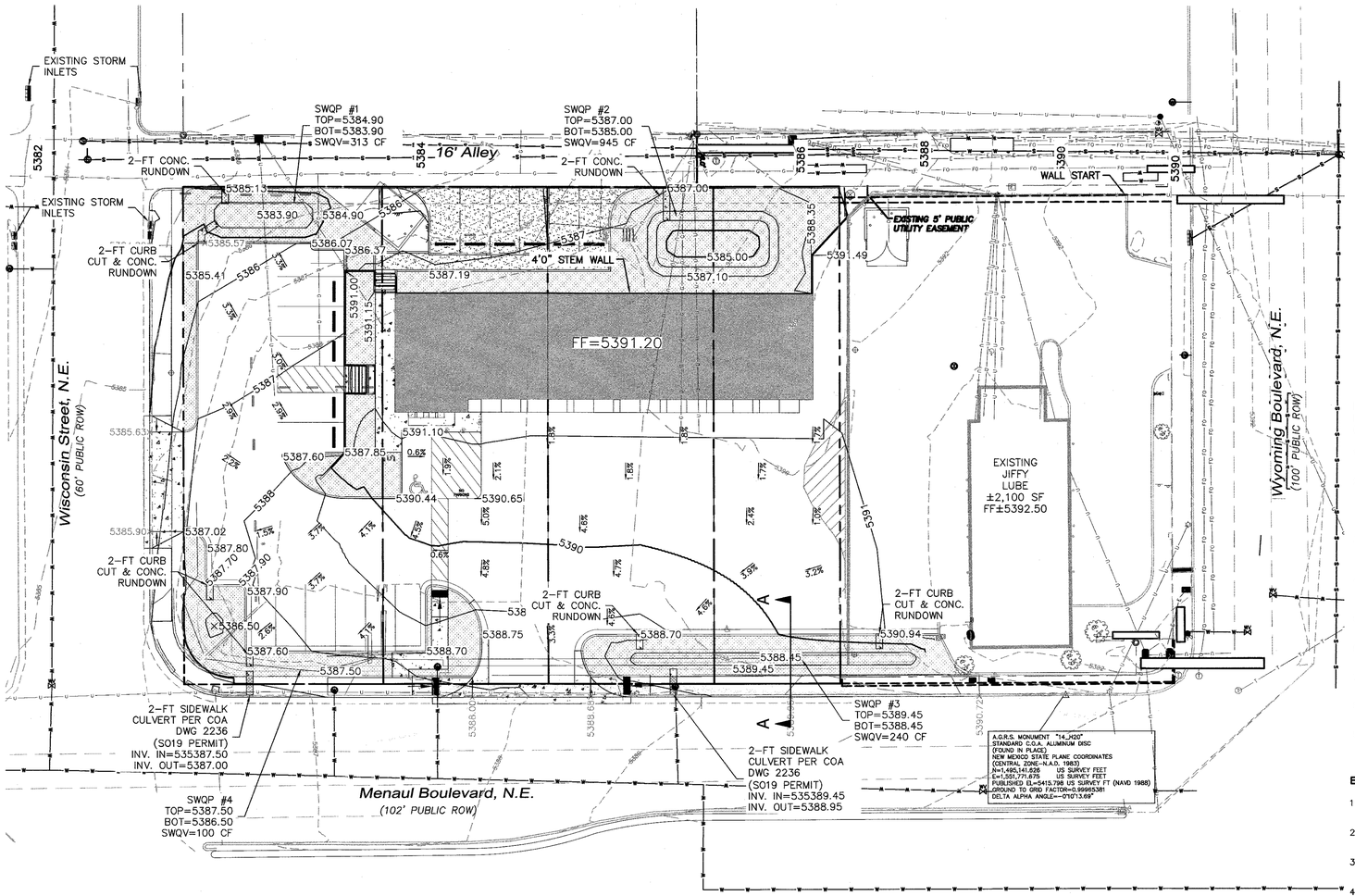
____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) _____

DATE SUBMITTED: 7/23/2019 By: Richard Stevenson

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____



LEGEND

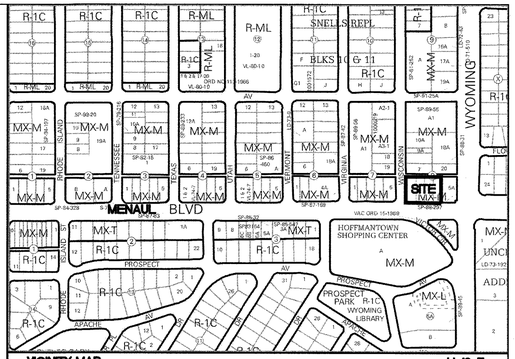
- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- SCREEN WALL
- RETAINING WALL
- 5010 CONTOUR MAJOR
- 5011 CONTOUR MINOR
- x 5048.25 SPOT ELEVATION
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- 5010 EXISTING CONTOUR MAJOR
- 5011 EXISTING CONTOUR MINOR
- x 5048.25 EXISTING SPOT ELEVATION

PRIVATE DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY NOTICE TO CONTRACTOR (SPECIAL ORDER 19 "SO-19")

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL, DIAL "811" [OR (505) 260-1990] FOR THE LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONNECTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL
5. NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
6. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
7. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
8. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.
9. CONTRACTOR MUST CONTACT JASON RODRIGUEZ AT 235-8016 AND CONSTRUCTION COORDINATION AT 924-3416 TO SCHEDULE AN INSPECTION.

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.

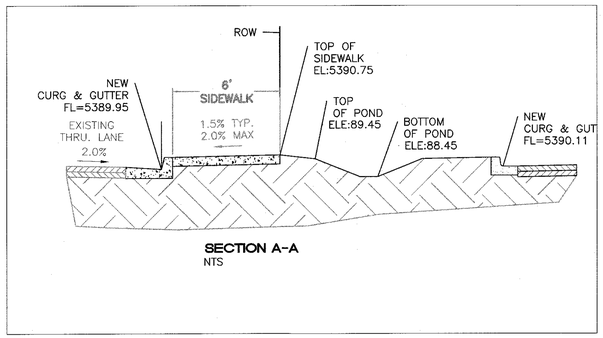


VICINITY MAP: H-19-Z

FIRM MAP: 8/16/2012 35001C0356H

LEGAL DESCRIPTION:

LOT 4-A, BLOCK 8, SOMBRA DEL MONTE,



SECTION A-A
NTS

GRAPHIC SCALE
20 10 0 10 20
SCALE: 1"=20'

CAUTION:

ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

ENGINEER'S SEAL

RONALD R BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER

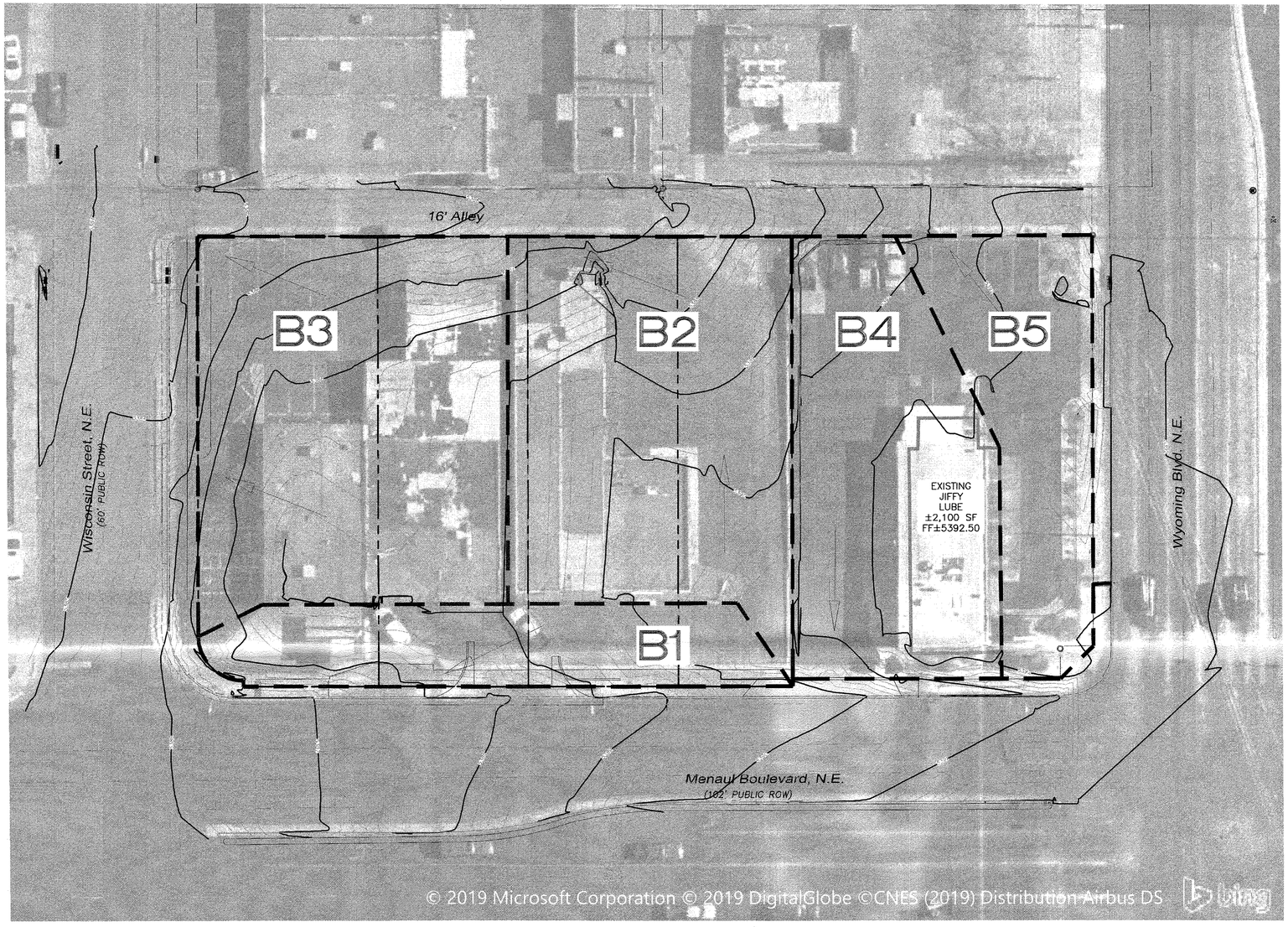
RONALD R. BOHANNAN P.E. #7868

JIFFY LUBE
2301 WYOMING BLVD. NE
GRADING & DRAINAGE PLAN

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

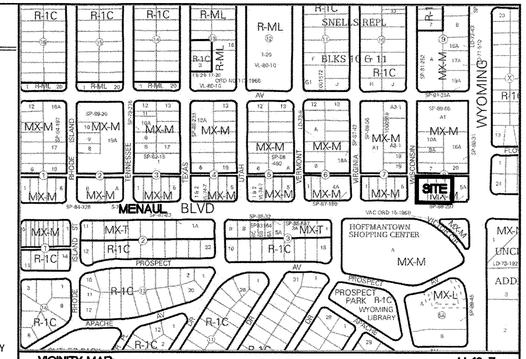
DRAWN BY: BF
DATE: 7/23/2019
2018016_GRE
SHEET # C1
JOB # 2018016

Z:\2018\2018016 Jiffy Lube Menaul & Wyoming\dwg\Site Plan - Administrative\2018016_GRE.dwg Jul 23, 2019 - 10:34am



LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- BUILDING
- SIDEWALK
- RETAINING WALL
- EXISTING STREET LIGHTS
- STRIPING
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- EXISTING SIDEWALK
- CONCRETE PAVERS
- DRAINAGE BASIN BOUNDARY
- FLOW DIRECTION



VICINITY MAP: H-19-Z

FLOOD MAP NO. 35001C0356H, DATED 08/16/2012

LEGAL DESCRIPTION:

LOT 4-A, BLOCK 8, SOMBRA DEL MONTE,

HISTORIC DRAINAGE

THE SUBJECT SITE IS LOCATED WITHIN FLOOD ZONE X DEFINED AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN". THE SITE DOES NOT LIE WITHIN A FLOOD HAZARD AREA AS SHOWN ON THE FEMA MAP REQUIRING NO FURTHER FLOOD-PROOFING OR OTHER FLOOD MITIGATION.

THE EXISTING PROPERTY IS IN A DEVELOPED STATE WITH AN 11,500 SQUARE FOOT SINGLE STORY MULTI-TENANT RETAIL BUILDING, ASPHALT AND CONCRETE PAVEMENT, AND ASSOCIATED UTILITIES. THE SITE IS EARMARKED FOR DEMOLITION AND SHALL BE RAZORED IN PREPARATION FOR THE NEW DEVELOPMENT. THE SITE IS DIVIDED INTO FOUR DRAINAGE BASINS. ALL ONSITE BASINS ARE 100% IMPERVIOUS AND FREELY DISCHARGE TO THE SURROUNDING STREETS. ONE BASIN COVERS THE SOUTHERN AREA ALONG THE FRONTAGE WITH MENAUL BLVD. WHICH SHEET FLOWS DIRECTLY INTO MENAUL BLVD., WITH THE SECOND AND THIRD BASINS COVERING THE SHEET RUNOFF DISCHARGED DIRECTLY TO THE STREET DROP INLET IN WISCONSIN ST. BASIN FOUR COVERS THE ADJACENT JIFFY LUBE STORE. FOR THE REDEVELOPMENT OF THE SITE, STORMWATER RUNOFF FROM THE JIFFY LUBE STORE WILL ENTER INTO THE NEW DEVELOPMENT AS THE DIVIDING WALL (AND WATER-BLOCK) BETWEEN THE PARCELS WILL BE REMOVED AND ALLOW OFFSITE DRAINAGE TO ENTER THE SITE.

CURRENTLY THE ONSITE STORMWATER RUNOFF DRAINS FROM SOUTHEAST TO NORTHWEST ACROSS THE SITE BEFORE FLOWING INTO WISCONSIN ST. (BASINS B3 AND B3). APPROXIMATELY 17% OF THE SITE RUNOFF FROM THE AREA PARALLEL TO MENAUL BLVD. (BASIN B1) FLOWS DIRECTLY INTO MENAUL BLVD. RUNOFF FROM THE PROPERTY TO THE EAST, THE EXISTING JIFFY LUBE, IS 80% IMPERVIOUS WITH 20% OF THE PROPERTY LANDSCAPED. THE PROPERTY FREELY DISCHARGES STORMWATER TO MENAUL BLVD. (BASIN B4) AND TO THE REAR ALLEY (BASIN B5) AND DOES NOT ENTER THE SITE BEING REDEVELOPED. FOR A 100 YEAR-6 HOUR STORM EVENT THE SITE STORMWATER RUNOFF VOLUME 0.134 AC-FT IS WITH A PEAK DISCHARGE OF 3.41 CFS. THE RUNOFF GENERATED FOR THE SAME EVENT FOR THE EXISTING JIFFY LUBE PROPERTY IS 0.063 AC-FT WITH A PEAK DISCHARGE OF 1.63 CFS.

GRAPHIC SCALE

20 10 0 10 20

SCALE: 1"=20'

Existing Conditions - Free Discharge

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
1	5,032.22	0.116	0.00018	0%	0.000	0%	0.000	0%	0.000	100%	0.116	2.360	0.023	0.58	1.500	0.014	0.39
2	11,812.13	0.271	0.00042	0%	0.000	0%	0.000	0%	0.000	100%	0.271	2.360	0.053	1.36	1.500	0.034	0.92
3	12,757.13	0.293	0.00046	0%	0.000	0%	0.000	0%	0.000	100%	0.293	2.360	0.058	1.47	1.500	0.037	0.99
Offsite - Existing Jiffy Lube Property																	
4	9,020.64	0.207	0.00032	0%	0.000	5%	0.010	0%	0.000	95%	0.197	2.288	0.039	1.01	1.443	0.025	0.68
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40
Total	**44,362.88**	**1.018**	**0.00159**		**0.00**		**0.03**		**0.00**		**0.99**		**0.197**	**5.04**		**0.124**	**3.39**

Excess Precipitation, E (in.)		
Zone 3	100-Year	10-Year
Ea	0.66	0.19
Eb	0.92	0.36
Ec	1.29	0.62
Ed	2.36	1.50

Peak Discharge (cfs/acre)		
Zone 3	100-Year	10-Year
Qa	1.87	0.58
Qb	2.6	1.19
Qc	3.45	2.00
Qd	5.02	3.39

ENGINEER'S SEAL

RONALD R BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER

RONALD R. BOHANNAN P.E. #7868

JIFFY LUBE
MENAUL AND WYOMING
HISTORIC DRAINAGE PLAN

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

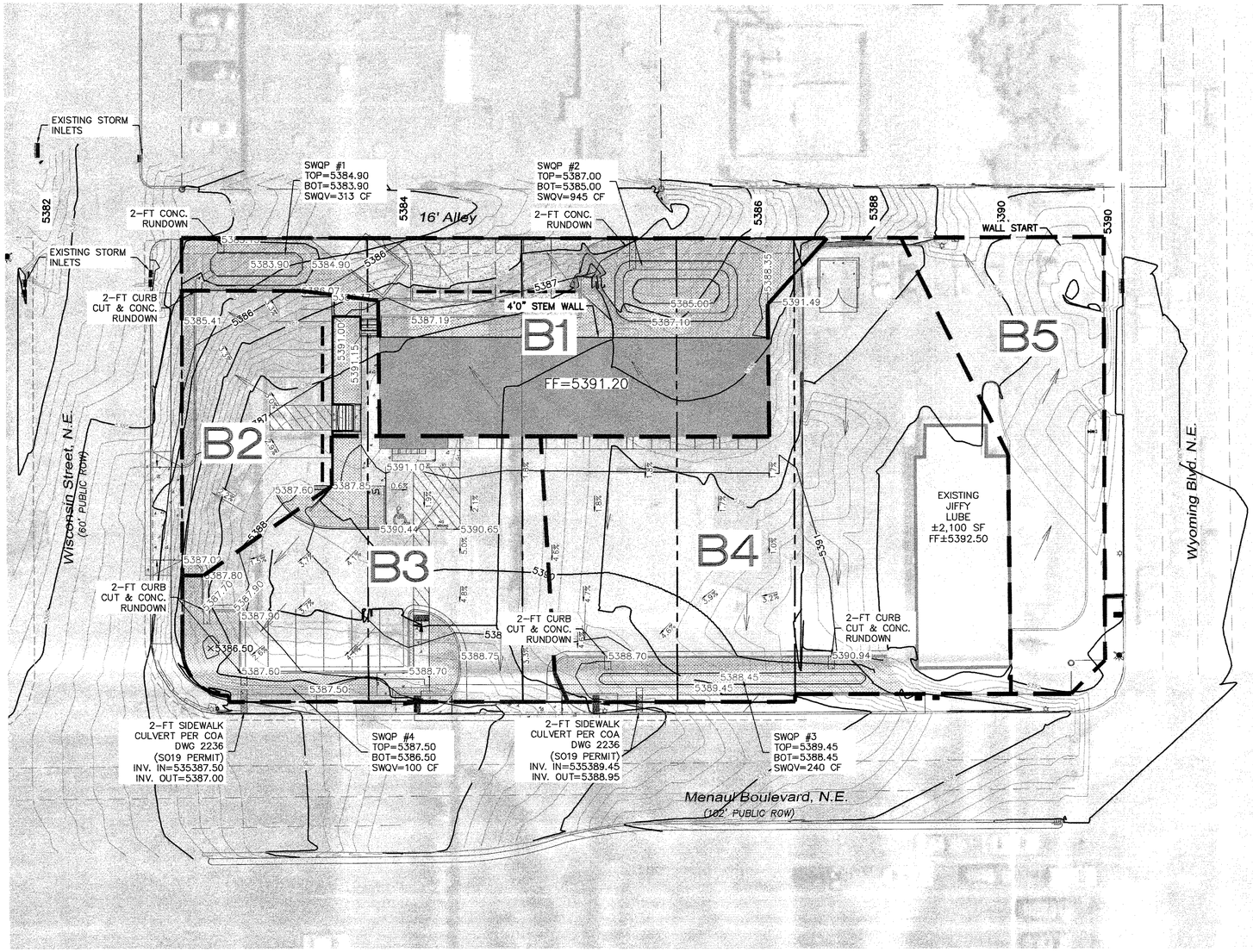
DRAWN BY RS

DATE 7\23\2019

2018016_HISTORIC_DRAINAGE

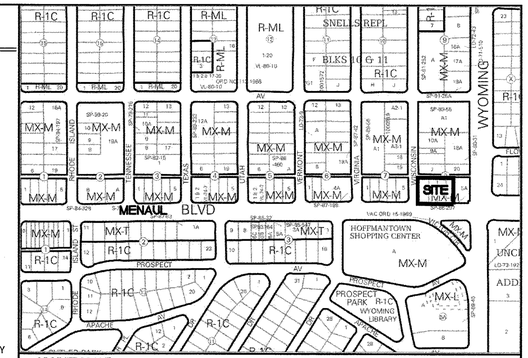
SHEET # D1

JOB # 2018016



LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- BUILDING
- SIDEWALK
- RETAINING WALL
- EXISTING STREET LIGHTS
- STRIPING
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- EXISTING SIDEWALK
- CONCRETE PAVERS
- DRAINAGE BASIN BOUNDARY
- FLOW DIRECTION



VICINITY MAP: H-19-Z

FLOOD MAP NO. 35001C0356H, DATED 08/16/2012

LEGAL DESCRIPTION:

LOT 4-A, BLOCK 8, SOMBRA DEL MONTE,

DEVELOPED DRAINAGE

THE DEVELOPED SITE, INCLUDING THE ADJACENT JIFFY LUBE PROPERTY, IS DIVIDED INTO FIVE BASINS. BASIN B1 COVERS THE NEW REPAIR SHOP BUILDING AND HEAD-IN PARKING ADJACENT TO THE ALLEYWAY. BASIN B2, B3 AND B4 COVERS THE ASSOCIATED DRIVE ISLES, ONSITE PARKING AND LANDSCAPING AREAS. BASIN B5 IS THE SAME AS HISTORIC, COVERING THE EXISTING PARKING LOT AND DRIVE ISLES.

THE 100-YEAR, 6 HOUR EVENT WAS USED TO COMPARE THE STORMWATER RUNOFF BETWEEN THE HISTORIC AND PROPOSED SITE. AS EXPECTED WITH THE ADDITIONAL LANDSCAPING AREAS REQUIRED, THE TOTAL RUNOFF IS LESS THAN THE HISTORIC VOLUME BY 0.016 AC-FT AND THE SITE DISCHARGE IS REDUCED BY 0.32 CFS.

AS THIS SITE IS A RE-DEVELOPMENT, THE WATER QUALITY VOLUME IS CALCULATED BASED ON THE 0.48 INCH STORM. TO CALCULATE THE STORMWATER QUALITY VOLUME THE IMPERVIOUS AREA IS MULTIPLIED BY 0.26 INCHES. THE FORMULA USED IS SWQV= 0.26*I*43,560*(1/12) WHERE 'I' IS THE IMPERVIOUS AREA IN ACRES. THE TOTAL IMPERVIOUS AREA IS 0.85 ACRES AND REQUIRES A TOTAL WATER QUALITY VOLUME OF 809 CUBIC FEET FOR THE IMPERVIOUS BASIN AREAS. SWQV POND 1 HAS A RETENTION VOLUME OF 313 CUBIC FEET, SWQV POND 2 A CAPACITY OF 945 CUBIC FEET, SWQV POND 3 A CAPACITY OF 100 CUBIC FEET AND SWQV POND 4 A CAPACITY OF 240 CUBIC FEET FOR A COMBINED TOTAL RETENTION OF 1,598 CUBIC FEET.

ROOF DRAINS FROM THE NEW REPAIR SHOP SHALL CONVEY ROOF RUNOFF AND DISCHARGE FLOWS DIRECTLY TO SWQV POND 2. STORMWATER RUNOFF GENERATED FROM THE BALANCE OF THE SITE AND THE HARDSCAPE AREAS SHALL BE DIRECTED TO THE SWQV PONDS WITH CURB CUTS AND CONCRETE RUNDOWNS BEFORE BEING DISCHARGED TO THE PUBLIC RIGHT-OF-WAY. ADDITIONAL FLOWS FROM SWQV POND 1 AND 2 SHALL SHEET FLOW INTO THE ALLEY WAY, WHICH THEN DISCHARGES TO THE INLETS ARE THE INTERSECTION WITH WISCONSIN ST. TWO 2-FOOT SIDEWALK CULVERTS UNDER THE SO-19 PERMIT ARE PROPOSED TO DISCHARGE THE EVENT STORM INTO MENAUL BLVD. THE 2-FOOT CULVERTS HAVE THE CAPACITY TO PASS THE DESIGN STORM EVENT FLOW.

Proposed Conditions - Free Discharge

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr			SWQV	
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs	Required (cf)	Provided (cf)
				%	(acres)	%	(acres)	%	(acres)	%	(acres)								
1	9,397.52	0.216	0.00034	0%	0.000	33%	0.071	0%	0.000	67%	0.145	1.885	0.034	0.91	1.124	0.020	0.57	136	1,258
2	4,520.86	0.104	0.00016	0%	0.000	7%	0.007	0%	0.000	93%	0.097	2.259	0.020	0.50	1.420	0.012	0.34	91	0
3	8,546.22	0.196	0.00031	0%	0.000	15%	0.029	0%	0.000	85%	0.167	2.144	0.035	0.91	1.329	0.022	0.60	157	100
4	16,157.52	0.371	0.00058	0%	0.000	9%	0.033	0%	0.000	91%	0.338	2.230	0.069	1.78	1.397	0.043	1.18	319	240
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40	106	0
Total	**44,362.88**	**1.018**	**0.00159**		**0.000**		**0.161**		**0.000**		**0.857**		**0.181**	**4.723**		**0.112**	**3.098**	**809**	**1,598**

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)
Volume = Weighted E * Total Area
Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*Ad
SWQV*= 0.26*I*43,560*(1/12) where 'I' is the impervious area in acres.
*Redeveloped site

Excess Precipitation, E (in.)		
Zone 3	100-Year	10-Year
Ea	0.66	0.19
Eb	0.92	0.36
Ec	1.29	0.62
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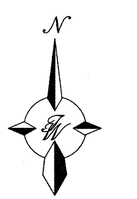

GRAPHIC SCALE

20 10 0 10 20

SCALE: 1"=20'

ENGINEER'S SEAL

RONALD R. BOHANNAN P.E. #7868

JIFFY LUBE
MENAUL AND WYOMING

DEVELOPED DRAINAGE PLAN

2018016_DEVELOPED_DRAINAGE

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

DRAWN BY: RS

DATE: 7\23\2019

SHEET # D2

JOB # 2018016

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DRAINAGE REPORT

Vehicle Repair Shop
8305-8313 Menaul Blvd. NE
Albuquerque, NM 87110

Prepared for:

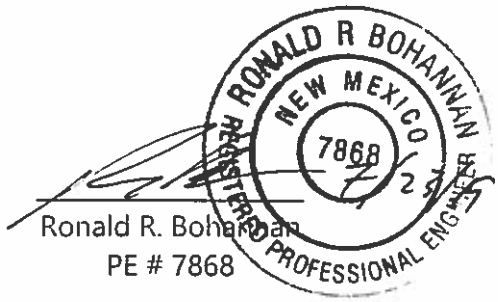
Lubricar, Inc. dba Jiffy Lube
3520 Calle Cuervo NW
Albuquerque, NM 87114

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

July 2019

I certify that this report was prepared under my supervision, and I am a registered Professional Engineer in the State of New Mexico in good standing.



Ronald R. Bohannan
PE # 7868

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Job No. 2018016

TABLE OF CONTENTS

Contents

Appendices

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Purpose

The purpose of this report is to outline the Drainage Plan and present a solution for the re-development of the commercial strip mall buildings at 8305-8313 Menaul Blvd. NE. The redevelopment will consist of a single-story 4,120 square foot vehicle repair shop that shall be operated by Jiffy Lube and complement their existing vehicle repair shop to the east, adjacent to the site, located at 2301 Wyoming Blvd. NE.

This report outlines the historic and developed stormwater calculations, and describes the on-site drainage improvements needed to safely convey the developed flows. The improvements were designed to be in compliance with the Albuquerque Development Process Manual and the City of Albuquerque Flood Hazard and Drainage Control Ordinance (2018) and includes the management of the 90th Percentile Storm Event onsite ('first flush'). The existing site is wholly impervious and is under a free discharge condition.

The entitlements for this project follow the *Site Plan - Administrative* procedures listed in the Integrated Development Ordinance.

Location and Background

The ±0.68 acre site is located on the southwest corner of Menaul Blvd. and Wisconsin St. in the northeast region of Albuquerque. The address of the parcel is 8305-8313 Menaul Blvd. NE, Albuquerque, NM 87110 and located within Zone Atlas Page H-19-Z. The proposed redevelopment will occur across the entire property, with the four lots being consolidated into one single lot through a platting action submitted to the City in July, 2019. The legal description of the parcel shall be Lot 4-A, Block 8, Sombra Del Monte, Section 7, Township 10 North, Range 4 East, N.M.P.M. Albuquerque, Bernalillo County, New Mexico.

The existing property is in a developed state with an 11,500 square foot single story multi-tenant retail building, asphalt and concrete pavement, and associated utilities. The site is earmarked for demolition and shall be cleared in preparation for the new development.

The site is bordered to the south by Menaul Blvd. (102' public ROW), Wisconsin St. (60' public ROW) to the west and a 16 foot public alleyway to the north. To the east is the existing Jiffy Lube service center. Historically no offsite stormwater enters the site. There are no files on City record for the current drainage of the site and a pre-submittal review of the site was completed with the City.

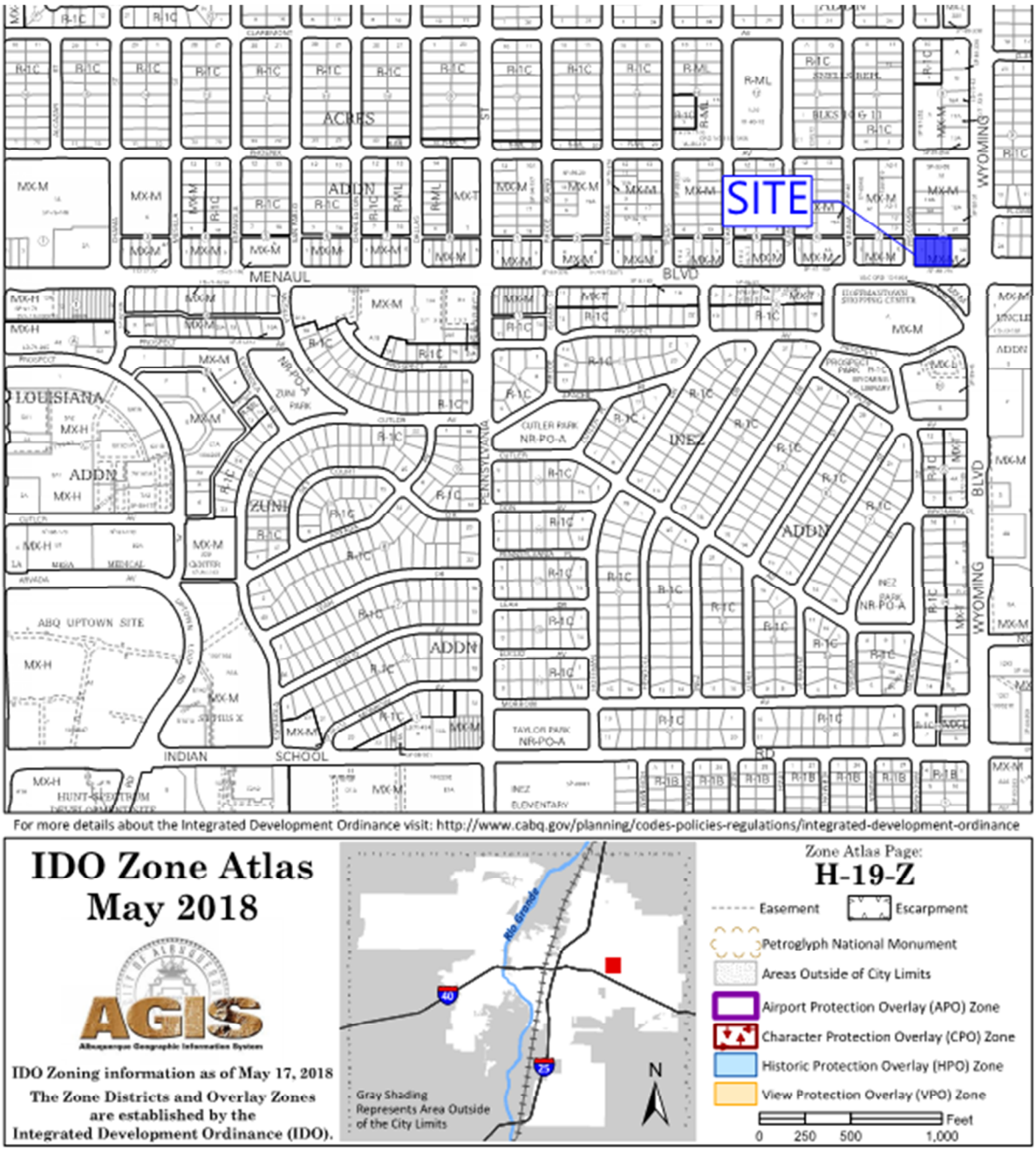

Exhibit A – Vicinity Map

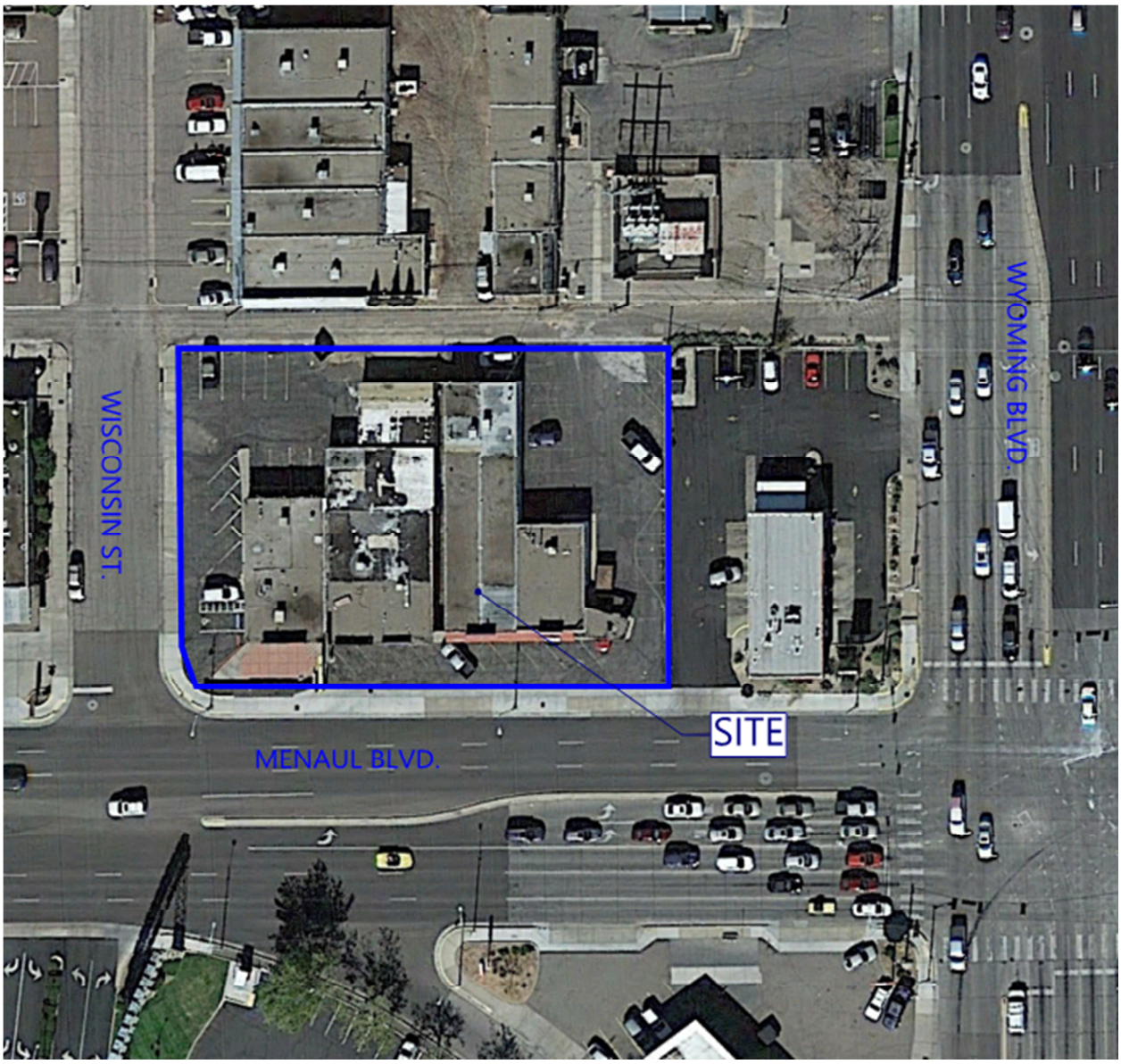

Exhibit B – Site Aerial Image

Flood Plain

The floodplain information is published for the site by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Bernalillo County, New Mexico and

Incorporated Areas. The subject site is detailed on Community Panel Number . 35001C0356H, dated August 16, 2012 and is shown below.

The subject site is located within Flood Zone X, which is which is defined as, "Areas determined to be outside the 0.2% annual chance floodplain". The site does not lie within a Flood Hazard Area as shown on the FEMA map requiring no further flood-proofing or other flood mitigation.

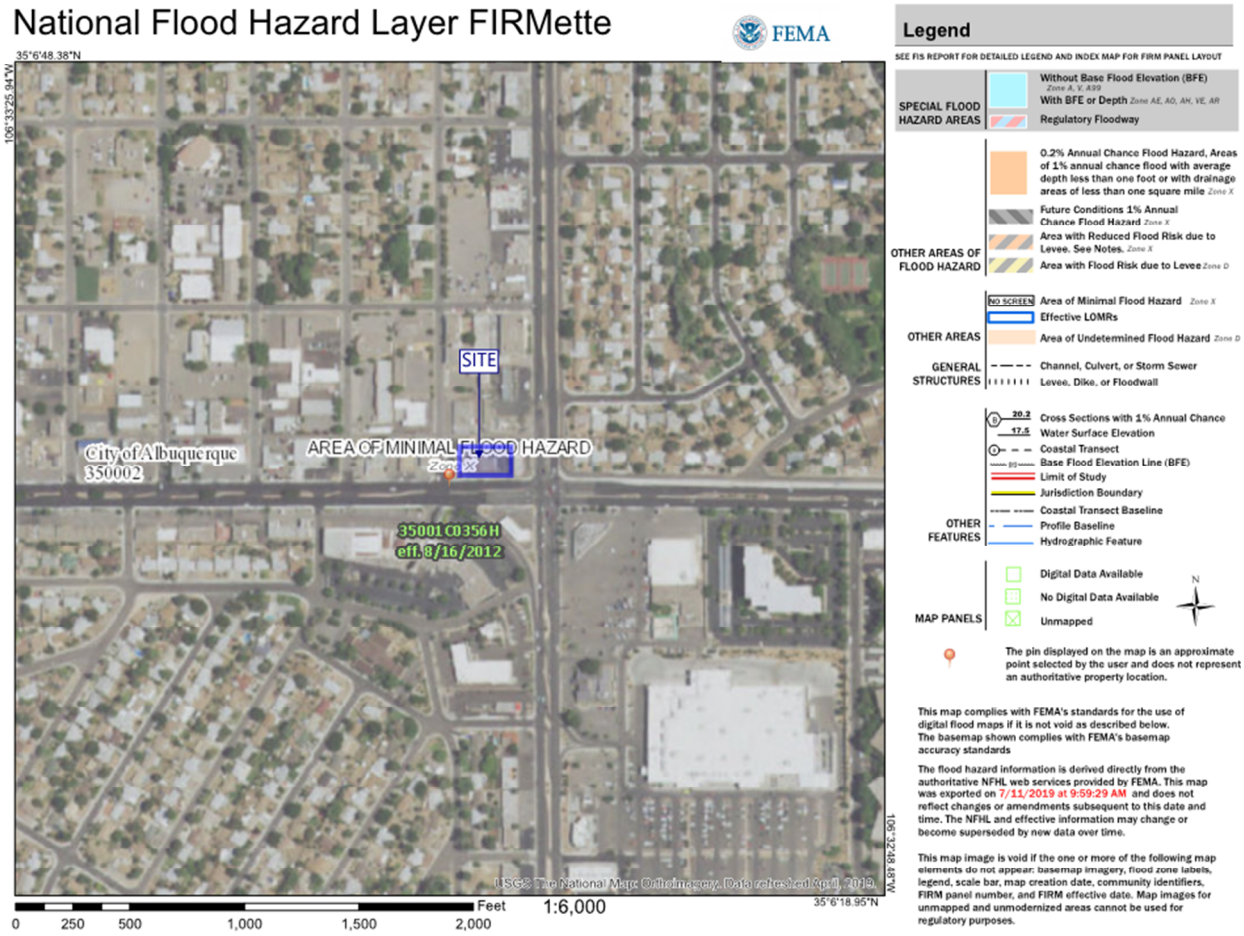

Exhibit C – FIRM Map

Calculations

The site is located within Precipitation Zone 3, east of San Mateo Blvd. and west of Eubank Blvd. as specified in Chapter 22, Section A.1 of the City of Albuquerque Development Process Manual Volume I – Design Criteria, 2006 Revision (DPM). The principal design storm is the 100-year, 6 hour event. As stated in the DPM in Chapter 22 Section A.2, the 100-year, 6 hour event is 2.60 inches.

The appropriate land treatments A through D, as defined in the DPM Chapter 22 Section A.3, were applied to the various pervious and impervious areas for the proposed re-developed site.

Excess precipitation is the depth of runoff remaining after the initial volume of rainfall retained on the surface and infiltration has been subtracted from the design storm hydrograph. The DPM defines the excess precipitation for the 100-year, 6 hour event in Chapter 22 Table A-8 for Zone 3 with the corresponding land treatments.

A weighted excess precipitation rate is used to calculate the volume runoff as defined in the DPM Chapter 22 (a-5, a-6). The calculation requires the sum of excess precipitation multiplied by the corresponding treatment areas divided by the total area, multiplied by the weighted excess precipitation of the watershed area.

To determine the peak discharge for the re-development the corresponding treatment areas are multiplied by the peak rate for each treatment and sum to compute the total flow. The peak rates for the treatment areas are defined in the DPM Chapter 22 Table A-9 for the 100-year event.

As this site is a re-development the storm water quality volume is calculated based on the 0.48 inch storm. To calculate the required storm water quality volume to be captured and retained onsite, the impervious areas are multiplied by 0.26 inches for the 80^{th} percentile storm based on methodology used in the EPA Report *Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed*, EPA Publication No. 832-R-14-007.

Existing (Historic) Developed Conditions

The site is divided into four drainage basins as shown in Exhibit D. All onsite basins are 100% impervious and freely discharge to the surrounding streets. One basin covers the southern area along the frontage with Menaul Blvd. which sheet flows directly into Menaul Blvd., with the second and third basins covering the sheet runoff discharged directly to the street drop inlet in Wisconsin St. Basin four covers the adjacent Jiffy Lube store. For the redevelopment of the site, stormwater runoff from the existing Jiffy Lube store parcel will enter into the new development as the dividing wall (and water-block) between the parcels will be removed and allow offsite drainage to enter the site. No other flows enter the site or the existing Jiffy Lube store.

Currently the onsite stormwater runoff drains from southeast to northwest across the site before flowing into Wisconsin St. (Basins B2 and B3). At the intersection of Wisconsin St. and the alley there are four type c inlets at each quadrant of the intersection. Approximately 17% of the site runoff from the area parallel to Menaul Blvd. (Basin B1) flows directly into Menaul Blvd and sheet flows along the curb to the type c inlet in Menaul, approximately 4,000 feet to the west of the site.

Runoff from the property to the east, the existing Jiffy Lube, is 80% impervious with 20% of the property landscaped. The property freely discharges stormwater to Menaul Blvd. (Basin B4) and to the rear alley (Basin B5) and does not currently enter the site being redeveloped.

For a 100 Year-6 Hour storm event the site stormwater runoff volume is 0.134 ac-ft with a peak discharge of 3.41 cfs. The runoff generated for the same event for the existing Jiffy Lube property is 0.063 ac-ft with a peak discharge of 1.63 cfs.

The runoff and volume calculations for the existing condition, based on the drainage criteria detailed in the DPM are included in appendix A.

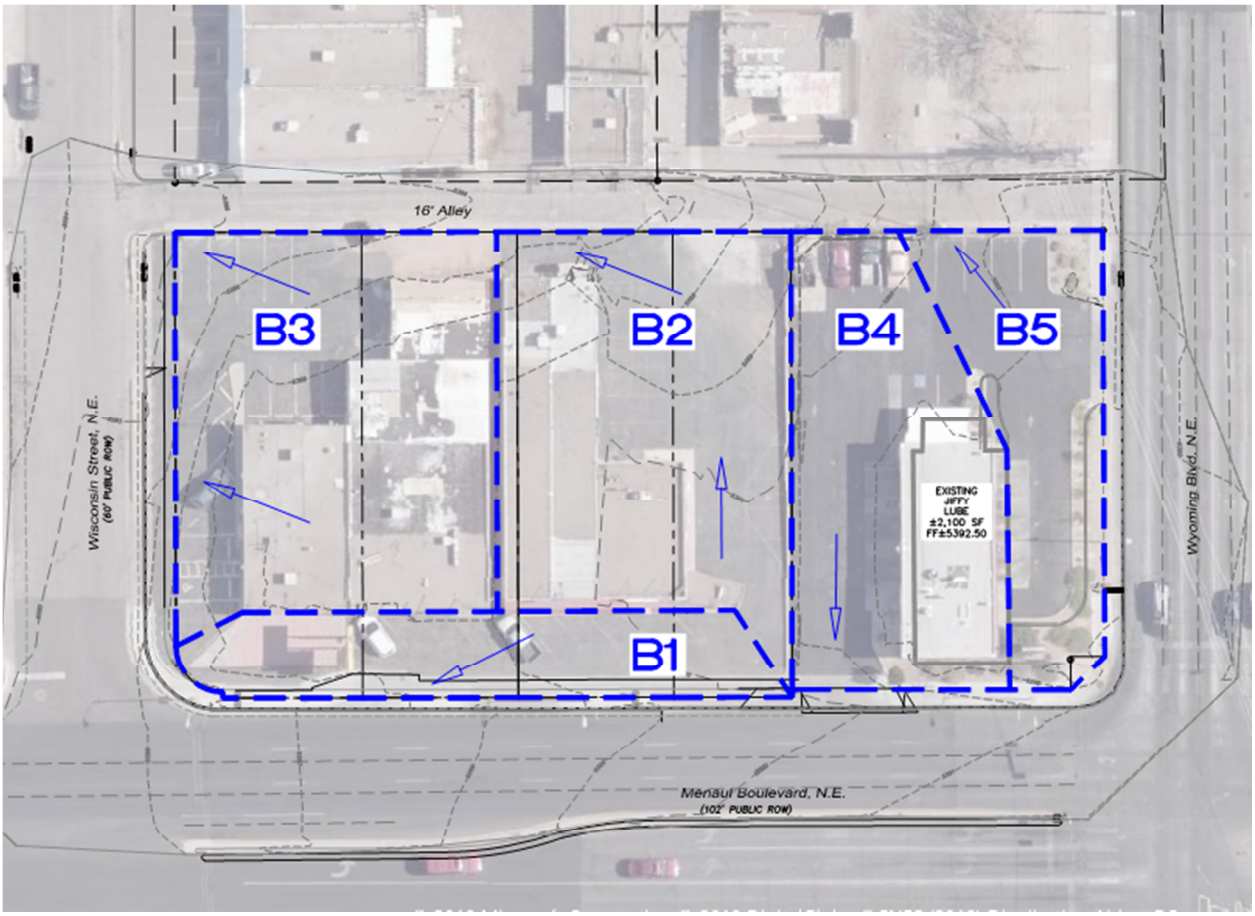

Exhibit D – Existing (Historic) Drainage Basin Map

Proposed Conditions

The developed site, including the adjacent Jiffy Lube property, is divided into five basins.

Basin B1 covers the new repair shop building and head-in parking adjacent to the alleyway. Basin B2, B3 and B4 covers the associated drive isles, onsite parking and landscaping areas. Basin B5 is the same as historic, covering the existing parking lot and drive isles.

The 100-year, 6 hour event was used to compare the stormwater runoff between the historic and proposed site. As to be expected with the addition of landscaping areas, the total runoff is less than the historic volume by 0.016 ac-ft and the site discharge is reduced by 0.32 cfs.

Difference between historic and proposed Event			
100-Year, 6-Hr Event			
Unit	**Historic**	**Developed**	**Difference**
Volume (ac-ft)	0.197	0.181	-8.0% (0.016 ac-ft)
Flow (cfs)	5.04	4.72	-6.3% (0.32 cfs)

There are four BMP stormwater quality volume (SWQV) surface ponds proposed to capture all of the required SWQV ('first flush') for the site and the existing Jiffy Lube store where possible. Sheet flow from the basin areas is directed to these SWQV pond areas. The curb cuts were sized to pass the design flow and sized for both the weir and normal depth equations.

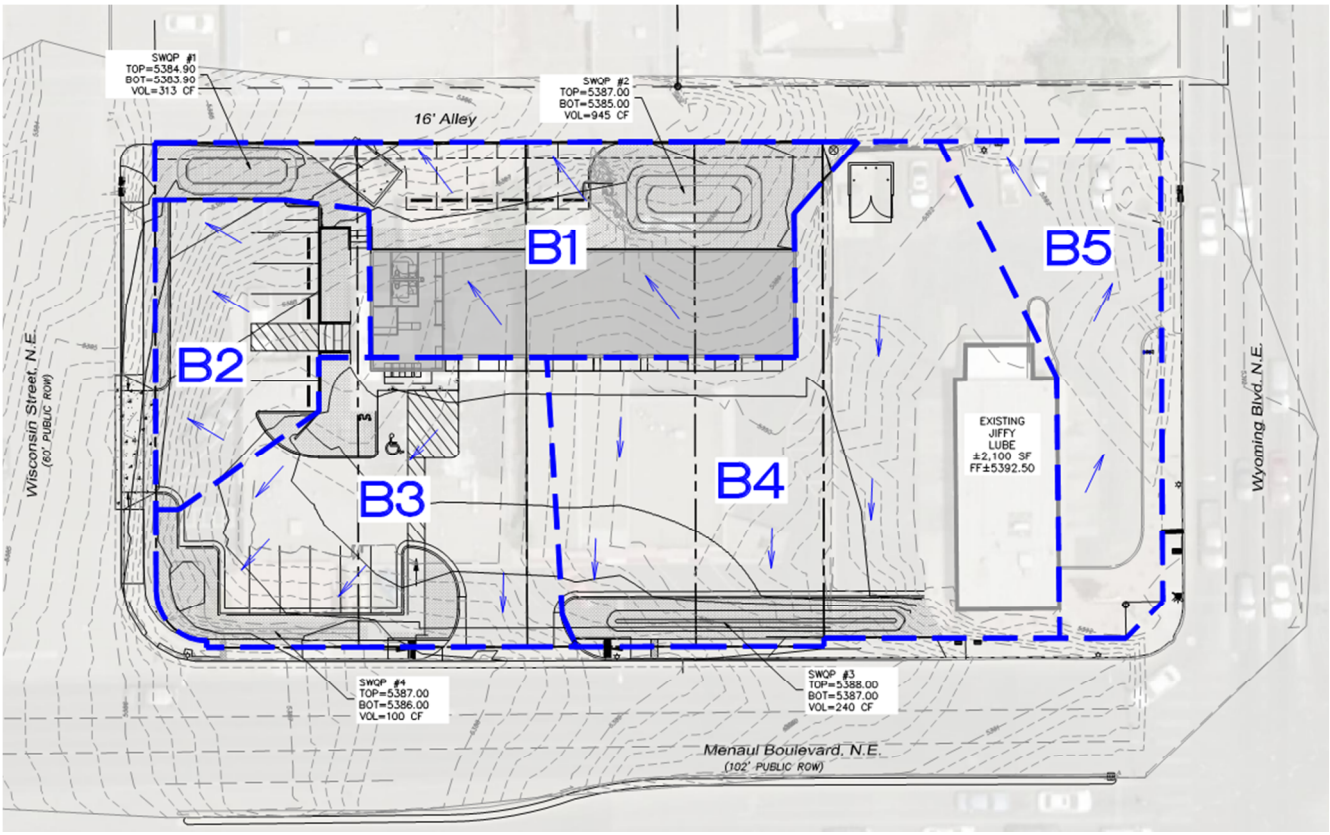

Exhibit E – Drainage Basin Map

Stormwater Quality Volume Management

As this site is a re-development site, the water quality volume is calculated based on the 0.48 inch storm. To calculate the Stormwater Quality Volume the impervious area is multiplied by 0.26 inches. The formula used is SWQV= 0.26*I*43,560*(1/12) where 'I' is the impervious area in acres.

The total impervious area is 0.85 acres and requires a total water quality volume of 809 cubic feet for the impervious basin areas. SWQV Pond 1 has a retention volume of 313 cubic feet, SWQV Pond 2 a capacity of 945 cubic feet, SWQV Pond 3 a capacity of 100 cubic feet and SWQV Pond 4 a capacity of 240 cubic feet for a combined total retention of 1,598 cubic feet.

Pond No.	Volume (cf)
SWQV Pond #1	313
SWQV Pond #2	945

SWQV Pond #3	100
SWQV Pond #4	240
Total Provided	**1,598**
Total Required	**809**

Roof drains from the new repair shop shall convey roof runoff and discharge flows directly to SWQV pond 2. Stormwater runoff generated from the balance of the site and the hardscape areas shall be directed to the SWQV ponds with curb cuts and concrete rundowns before being discharged to the public right-of-way.

Additional flows from SWQV pond 1 and 2 shall sheet flow into the alley way, which then discharges to the inlets are the intersection with Wisconsin St.

Two 2-foot sidewalk culverts under the SO-19 Permit are proposed to discharge the event storm into Menaul Blvd. The 2-foot culverts have the capacity to pass the design storm event flow. The water quality volume and weir calculations are detailed on the hydrology table in the appendix.

Summary

This report outlines the difference in the historic and developed drainage for the proposed redevelopment of the existing commercial strip mall buildings at 8305-8313 Menaul Blvd. NE. in a 4,120 square foot vehicle repair shop.

The total discharge for the 100-year, 6 hour event is less than the existing runoff due to the increase in landscape areas. To enable cross lot access between the site and the existing Jiffy Lube to the east, the existing water-block will be removed and offsite flows from this parcel will enter into the new development. The additional flows were considered in the design calculations and sizing of SWQV ponds.

There is adequate onsite SWQV provided in the landscape areas and the discharge from the site into Menaul Blvd. shall pass through two sidewalk culverts under a SO-19 permit.

APPENDIX A

DPM Weighted E Method

Precipitation Zone 3

Lots 8301-8305 Menaul Blvd. NE, Albuquerque NM 87110

TWLLC **Date** 7/11/2019

Existing Conditions - Free Discharge

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
1	5,032.22	0.116	0.00018	0%	0.000	0%	0.000	0%	0.000	100%	0.116	2.360	0.023	0.58	1.500	0.014	0.39
2	11,812.13	0.271	0.00042	0%	0.000	0%	0.000	0%	0.000	100%	0.271	2.360	0.053	1.36	1.500	0.034	0.92
3	12,757.13	0.293	0.00046	0%	0.000	0%	0.000	0%	0.000	100%	0.293	2.360	0.058	1.47	1.500	0.037	0.99
Offsite - Existing Jiffy Lube Property																	
4	9,020.64	0.207	0.00032	0%	0.000	5%	0.010	0%	0.000	95%	0.197	2.288	0.039	1.01	1.443	0.025	0.68
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40
Total	**44,362.88**	**1.018**	**0.00159**		**0.00**		**0.03**		**0.00**		**0.99**		**0.197**	**5.04**		**0.124**	**3.39**

Pond No.	Volume (cf)
SWQV Pond #1	313
SWQV Pond #2	945
SWQV Pond #3	100
SWQV Pond #4	240
Total	1,598
Total Required	809

Proposed Conditions - Free Discharge

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr			SWQV	
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs	Vol Required	Provided (cf)
1	9,397.52	0.216	0.00034	0%	0.000	33%	0.071	0%	0.000	67%	0.145	1.885	0.034	0.91	1.124	0.020	0.57	136	1,258
2	4,520.86	0.104	0.00016	0%	0.000	7%	0.007	0%	0.000	93%	0.097	2.259	0.020	0.50	1.420	0.012	0.34	91	0
3	8,546.22	0.196	0.00031	0%	0.000	15%	0.029	0%	0.000	85%	0.167	2.144	0.035	0.91	1.329	0.022	0.60	157	100
4	16,157.52	0.371	0.00058	0%	0.000	9%	0.033	0%	0.000	91%	0.338	2.230	0.069	1.78	1.397	0.043	1.18	319	240
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40	106	0
Total	**44,362.88**	**1.018**	**0.00159**		**0.000**		**0.161**		**0.000**		**0.857**		**0.181**	**4.723**		**0.112**	**3.098**	**809**	**1,598**

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted E * Total Area

Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*Ad

SWQV*= 0.26*I*43,560*(1/12) where 'I' is the impervious area in acres.

*Redeveloped site

Excess Precipitation, E (in.)		
Zone 3	100-Year	10-Year
Ea	0.66	0.19
Eb	0.92	0.36
Ec	1.29	0.62
Ed	2.36	1.50

Peak Discharge (cfs/acre)		
Zone 3	100-Year	10-Year
Qa	1.87	0.58
Qb	2.6	1.19
Qc	3.45	2.00
Qd	5.02	3.39

Curb Opening Capacity

Weir Equation:

$$Q = CLH^{3/2}$$

Q= Flow
C = 2.7 (Per 6-15(A) of proposed DPM)
L= Length of weir
H = Height of Weir

2.0' Curb Opening for SWQV Pond #2 & #3

Q=2.7 * 2.0' * 0.5' ^(3/2)

Q = 1.91 cfs
1.91 cfs > 0.91 cfs (Basin B3) and 1.91 cfs > 1.78 cfs (Basin B4)

Opening has adequate capacity.

Worksheet for 2' Concrete Sidewalk Culvert at 2% Slope

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.02000	ft/ft
Normal Depth	0.50	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.58
0+00	0.08
0+01	0.00
0+02	0.08
0+02	0.58

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.58)	(0+02, 0.58)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	6.97	ft³/s
Elevation Range	0.00 to 0.58 ft	
Flow Area	0.92	ft²
Wetted Perimeter	2.84	ft
Hydraulic Radius	0.32	ft
Top Width	2.00	ft
Normal Depth	0.50	ft
Critical Depth	0.76	ft

Worksheet for 2' Concrete Sidewalk Culvert at 2% Slope

Results

Critical Slope		0.00550	ft/ft
Velocity		7.61	ft/s
Velocity Head		0.90	ft
Specific Energy		1.40	ft
Froude Number		1.98	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.76	ft
Channel Slope	0.02000	ft/ft
Critical Slope	0.00550	ft/ft

Cross Section for 2% Slope

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.02000	ft/ft
Normal Depth	0.50	ft
Discharge	6.97	ft³/s

Cross Section Image